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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/507,363

09/20/2004

Yasuhiro Inagawa

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07/07/2006

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ALEXANDRIA, VA 22314

EXAMINER

HAUGLAND, SCOTT J

ART UNIT

PAPER NUMBER

3654

DATE MAILED: 07/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/507,363

Applicant(s)

INAGAWA ET AL.

Examiner

Scott Haugland

Art Unit

3654

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>9/20/04</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The language "established non-rotatably relative to said torsion bar" in claim 1, lines 18-19 is unclear or inaccurate. The planet gear is non-rotatable relative to the torsion bar only when the reel does not rotatable relative to the torsion bar (i.e., when the torsion bar does not twist).

Claims 3 and 4 recites the limitation "the area of said plastic deformation" on line 2. There is insufficient antecedent basis for this limitation in the claim. In addition, this language does not appear to be accurate since the area of deformation increases in the direction of movement of the planet gear from the point at which deformation begins.

Claim 3 recites the limitation "said deformation member" on line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim 4 recites the limitation "said deformation member" on line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim 5 recites the limitation "said deformation member" on lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claim 6 recites the limitation "said deformation member" on lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rohrlé (U.S. Pat. No. 6,216,972) in view of Smithson et al (U.S. Pat. No. 5,971,489).

Rohrlé discloses a seat belt retractor including a take-up drum 100 with webbing wound therearound, the take-up drum 100 being rotatably urged in a direction in which the webbing is wound up (col. 4, line 18), a torsion bar 102 fitted by insertion in the take-up drum 100 and having a first end coupled to a first end of the take-up drum 100 non-rotatably relative thereto, a ratchet wheel 104 coupled to a second end of the torsion bar 102 non-rotatably relative thereto, an emergency locking member 108 operative, in the event of a vehicle emergency, to be locked to the ratchet wheel 104 to stop the rotation of the ratchet wheel, thereby stopping the rotation of the take-up drum 100 in a direction in which the webbing is paid out, the torsion bar 102 being twistingly deformed when the

webbing is further paid out after the emergency locking member 108 is locked, said seat belt retractor comprising: a cylindrical sun element 40 provided on a second end of said take-up drum 100 and rotating integrally with the take-up drum 100, an internal tooth element (portion of 10 surrounding 40) provided near the second end of said torsion bar non-rotatably relative to the torsion bar when locking member 108 is in the locking position, having an inner peripheral surface opposed to and spaced apart from an outer peripheral surface of said sun element, and a deformable member 22 that is plastically deformed when the webbing is paid out and the emergency locking member 108 is locked.

Rohrle does not disclose that one of the peripheral surface of the sun element and the peripheral surface of the internal tooth element is a gear surface and does not disclose a planet gear in mesh with the gear surface and plastically deforming the deformable member.

Smithson et al teaches (e.g., see Figs. 16 and 18) providing a reel with an energy absorbing structure including gear 66, gear 71, and deformable material 1 on the surface of gear 71.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the seat belt retractor of Rohrle with an internal gear and deformable material on the internal gear in lieu of guide path 20 and deformable band 26 and with a planet gear between sun element 40 and internal gear and meshing with the internal gear and deforming the deformable material as taught by Smithson et al to

provide a more constant load limit (not dependent on the length of material that remains to be deformed) on the seat belt.

With regard to claim 2, Smithson et al appears to teach the claimed relationship of depth of bite and length of gap. Assuming, arguendo that it does not, it would have been a matter of obvious engineering choice to provide the claimed relationship to adjust the load limiting force and energy absorption rate to the required values.

With regard to claims 3 and 4, the area of plastic deformation in the modified apparatus of Rohrle appears to change in a similar manner to that in Applicants' apparatus, i.e., it increases in the direction of movement of the planet gear.

With regard to claims 5-8, it would have been obvious to provide positioning pins between the deformable member and gear as taught by Rohrle (note pins 106) to provide a threshold force for operation of the energy absorption structure that includes the deformable member.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Cunningham (U.S. Pat. No. 4,215,830), Weman (U.S. Pat. No. 4,216,922), and Hirase et al (U.S. Pat. No. 5,558,293) are cited to show seat belt retractors having planetary gearing. Ono et al (U.S. Pat. No. 6,113,022) and Fujii et al (U.S. Pat. No. 6,416,008) are cited to show seat belt retractors having deformable energy absorption means. Specht (U.S. Pat. No. 6,343,759) is cited to show a seat belt retractor having deformable planetary friction gearing. Hori et al (U.S. Pat. No.

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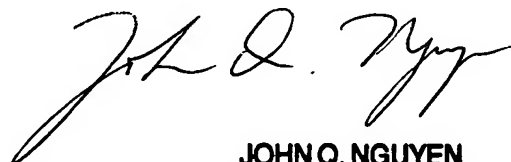
6,454,199) is cited to show a seat belt retractor having portions deformed by tooth elements during operation.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Haugland whose telephone number is (571) 272-6945. The examiner can normally be reached on Monday - Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kathy Matecki can be reached on (571) 272-6951. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


sjh
6/19/06


JOHN Q. NGUYEN
PRIMARY EXAMINER